Comparisons of Job Characteristics

Focus Occupation: Computer Software Engineers, Systems Software (15-1032)
Associated Occupation: Computer Software Engineers, Applications (15-1031)

Compare Knowledge
Compare Skills
Compare Abilities
Compare Detailed Work Activities
Compare Tools and Technologies

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge

Similarity of Focus Occupation to Associated Occupation: 94

Focus Occupation: Computer Software Engineers, Systems Software (15-1032)
Associated Occupation: Computer Software Engineers, Applications (15-1031)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Computers and Electronics	8.4	23.8	23.1	0	Current knowledge level may be sufficient
Mathematics	9.2	15.4	11.7	<<	Extensive education and/or training may be required
Engineering and Technology	5.7	10.1	14.6	>>	Current knowledge level is likely more than sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills

Similarity of Focus Occupation to Associated Occupation: 70

Focus Occupation: Computer Software Engineers, Systems Software (15-1032)
Associated Occupation: Computer Software Engineers, Applications (15-1031)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Programming	2.2	14.6	12.6	<	A higher skill level may be required
Complex Problem Solving	9.1	14.1	11.9	<	A higher skill level may be required
Troubleshooting	4.5	13.5	4.1	<<	Extensive development of skills in this area may be required
Systems Evaluation	6.4	13.4	10.7	<	A higher skill level may be required
Systems Analysis	6.5	13.3	10.2	<<	Extensive development of skills in this area may be required
Mathematics	6.2	12.0	9.7	<	A higher skill level may be required
Operations Analysis	5.0	11.4	12.0	0	Current skill level may be sufficient
Technology Design	2.6	10.3	8.1	<	A higher skill level may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities

Similarity of Focus Occupation to Associated Occupation: 95

Focus Occupation: Computer Software Engineers, Systems Software (15-1032)
Associated Occupation: Computer Software Engineers, Applications (15-1031)

Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Deductive Reasoning	10.6	13.6	12.6	0	Current ability level may be sufficient
Mathematical Reasoning	6.3	12.4	9.8	<	Some improvement in abilities may be required
Fluency of Ideas	7.6	11.9	8.8	<<	Extensive improvement in abilities may be required
Number Facility	6.3	11.2	6.6	<<	Extensive improvement in abilities may be required
Category Flexibility	9.0	11.1	9.7	<	Some improvement in abilities may be required
Originality	7.6	10.8	9.3	<	Some improvement in abilities may be required
Selective Attention	8.7	10.5	9.0	<	Some improvement in abilities may be required
Speed of Closure	5.9	8.1	5.6	<<	Extensive improvement in abilities may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 100

Focus Occupation: Computer Software Engineers, Systems Software (15-1032)
Associated Occupation: Computer Software Engineers, Applications (15-1031)

Work Activities	Exclusivity of Activity
Adjust computer operation system	84
Advise clients regarding engineering problems	67
Analyze technical data, designs, or preliminary specifications	47
Check hardware or software to determine reliability	95
Communicate technical information	4
Conduct performance testing	66
Consult with customers concerning needs	69
Design computer hardware or software interface	87
Design data processing systems	92
Design data security systems	89
Design electronic equipment	74
Design hardware or software systems	92

Design systems in cooperation with colleagues	84
Develop computer performance standards	87
Develop mathematical or computer languages	89
Develop or maintain databases	30
Develop tables depicting data	33
Evaluate computer system user requests or requirements	81
Evaluate prototype computer software systems	89
Follow data security procedures	77
Follow data storage procedures	75
Make presentations	13
Prepare technical reports or related documentation	22
Program computers for electronic engineering applications	87
Program mainframe computer	84
Provide technical computer training	82
Read blueprints	10
Read schematics	34
Read technical drawings	7
Recommend purchase, repair, or modification of equipment	82
Recommend software or hardware purchases	85
Resolve engineering or science problems	46
Revise or correct errors in computer programs, software, or systems	85
Test computer programs or systems	78
Train workers in use of equipment	87
Understand detailed electronic design specifications	70
Understand engineering data or reports	48
Use computer networking technology	81
Use computer programming language	82
Use computers to enter, access or retrieve data	3
Use knowledge of mainframe computers	78
Use project management techniques	47
Use scientific research methodology	21
Use spreadsheet software	18
Write computer software, programs, or code	84
Write documentation for computer programming	87
Write technical specifications for computer systems, software or applications	92

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 94

Focus Occupation: Computer Software Engineers, Systems Software (15-1032)
Associated Occupation: Computer Software Engineers, Applications (15-1031)

Tools and Technologies	Exclusivity
Business function specific software	1

Computers	1
Content authoring and editing software	1
Content management software	6
Data management and query software	1
Development software	4
Electronic and communication measuring and testing instruments	14
Industry specific software	1
Network applications software	1
Networking software	21
Operating environment software	12
Security and protection software	30
Utility and device driver software	17

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.